What is claimed is:

1.   A hierarchy of logic configuration storage, the hierarchy consisting of at least external storage, on-chip compressed cache, on-chip decompressed planes, and one or more active planes.

2.   A method of configuration of an array of computing and/or interconnect elements, comprising:

decoding configuration memory by rows and columns; and

applying configuration codes to intersections of selected rows and columns, including a multiplicity of such intersections for the same configuration code.

3.   The method of Claim 2, further comprising overwriting an existing configuration code with a new code, allowing the efficient compression of regular arrays with differing end conditions such as configurations of different sizes and differing contents for items of configuration.

4.   The method of Claim 3, further comprising:

changing at least some of a computing element's configuration;

holding fixed at least some of a storage element's configuration;

whereby data-in-place reconfiguration is achieved.

5.   A reconfigurable computing chip comprising an on-chip configuration cache containing a multiplicity of stored configurations, wherein each configuration is identified by a unique off-chip address used to fetch that configuration.

6.   The apparatus of Claim 5, where each configuration is compressed.

Sub A 1

7.   The apparatus of Claim 5, where the identification of the addresses is performed using contents-addressable memory.

8.   In a reconfigurable computing system including a reconfigurable computing chip having reconfigurable logic and multiple configuration planes, the system further including off-chip storage, a method of configuration management, comprising storing in a table a current state of the on-chip configurations, said table consisting of multiple entries, each entry identifying an on-chip configuration plane and identifying a unique off-chip address of a loaded configuration.

9.   The method of Claim 8, further comprising:
       saving the table, thereby saving the entire state of the reconfigurable logic;
       loading the table; and
       from information stored in the table, loading the identified configurations into the identified on-chip planes.

10.   The method of Claim 8, further comprising establishing initial boot conditions in the reconfigurable logic by:
       specifying in the table an address of a boot configuration; and
       automatically loading the boot configuration into the reconfigurable computing chip on boot up.

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